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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,053	08/20/2001	Rolf Heinemann	SBV-07699	6719

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EXAMINER

FULLER, ERIC B

ART UNIT PAPER NUMBER

1762

DATE MAILED: 12/19/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,053

Applicant(s)

HEINEMANN ET AL

Examiner

Eric B Fuller

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfeffinger et al. (US 6,221,504 B1) in view of Beyer et al. (US 6,197,368 B1)

Pfeffinger teaches coating the cylinder bores of a crankcase with a wear resistant material (column 2, line 41) by plasma spraying (column 3, line 27). Pfeffinger further teaches that the powder material used for coating is an aluminum/silicon alloy (column 4, line 7). The coating is deposited onto and alloyed into the substrate. The reference fails to teach the use of a simultaneous laser surface treatment. However, Beyer teaches the simultaneous use of a plasma spray and lasers to apply a wear resistant coating to a metal substrate (abstract). The lasers act to partially melt the surface of the substrate by passing the laser through the spray jet, thereby increasing the metallurgical bond of the coating to the substrate (column 2, lines 24-36). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to simultaneously use a laser surface treatment, as taught by Beyer, when applying a wear resistant coating to the cylinder bores of a crankcase by plasma spraying in order to reap the benefits of increased metallurgical bonding.

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Additionally, Pfeffinger teaches that the sprayer is inserted coaxially into the cylinder and rotated around the central axis of the cylinder while being moved axially (column 6, line 13). One of ordinary skill would recognize that in order to perform the process suggested by Pfeffinger in view of Beyer (to have the laser pass through the spray jet and melt the substrate) the laser must follow the same path. This results in the configuration of claims 1, 13, and 15.

As to claims 2 and 3, Pfeffinger teaches that additional laser treatment may be used to deposit dry lubricants (column 3, lines 35-40).

As to claims 8-12, the depth of alloying and thickness of deposition is not explicitly taught by Pfeffinger. However, to use a depth and thickness that provides adequate protection, while still providing clearance for the piston to fit in the cylinder, would have been obvious. To determine the process parameters such as number of passes, laser power, and speed of pass would have been within the skill of one practicing in the art through routine experimentation in order to achieve a sufficient thickness.

As to claims 14 and 16, Beyer teaches the use of mirrors to direct the laser beam through the spray jet (figure 1, ref. 4). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use a mirror in the process of Pfeffinger in view of Beyer in order to direct the laser through the spray jet.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kramer et al. (US 5,080,056), Kloft et al. (US 6,095,107), and Coddet et al. (EP 0 580 534 A1) are considered pertinent to the applicant's disclosure.

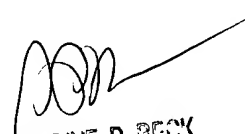
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (703) 308-6544. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached at (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



EBF
December 16, 2002



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